

throughout adolescence. This study explores how developmental changes in brain function when performing a risk-taking fMRI (functional Magnetic Resonance Imaging) task are related to puberty, independently of chronological age.

**Methods:** Forty-five male participants aged 13–14 years underwent fMRI scanning whilst performing a risk-taking task (BART task, adapted from Lejuez et al., 2002). In this age range, there is normal variability in pubertal development, with individuals being at all stages of puberty from pre-puberty to having completed puberty. In the BART task, participants had to decide whether to inflate a virtual balloon on a screen. Successful inflation of the balloon resulted in the opportunity to earn more money, but risked the balloon popping and the money being lost. Stopping allowed the participants to save the money towards their final earnings. Participants completed four six-minute runs of the task. Pubertal stage was assessed using self-report measures including a pictorial Tanner stage and the Pubertal Developmental Scale (Petersen et al., 1988). Salivary hormone levels were collected to measure levels of Testosterone, Oestradiol and DHEA. Participants also completed validated self-report questionnaires of risk-taking, impulsivity and sensation-seeking.

**Results:** The analysis focused on a main effect, across the entire group, of active decision-making compared to the control condition in regions including the prefrontal cortex and limbic system, which are known to be involved in risky decision-making. We also investigated whether this activation was differentially related to puberty across regions, using both group-wise and regression analyses.

**Conclusions:** This study investigated a role for puberty in the functional development of brain regions involved in risky decision-making in males, and further informs the usefulness of the dual systems model of risk taking during adolescence.

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## PREVENTION

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### VALIDATING A CHINESE VERSION OF THE GAPS QUESTIONNAIRE TO EXAMINE HEALTH RISK BEHAVIORS AND DEPRESSIVE SYMPTOMS AMONG UNDERGRADUATE STUDENTS IN HONG KONG

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**Purpose:** Unhealthy habits and risk behaviors like smoking, teenage pregnancy, drug and alcohol use in youth are associated with serious health problems such as psychological disorders, cardiac and respiratory diseases, cancer, complicated pregnancies and deliveries in later life. GAPS or the Guidelines for Adolescent Preventive Services, developed by the American Medical Association, is a validated and standardized screening tool for healthcare providers to assess adolescents for health risk behaviors. Research shows that anxiety and depression are common among teens in Hong Kong. In a recent study, university students in Hong Kong reported problems in the last five years with school issues (18.6%), depression (17.1%), body image (16.8%), and internet overuse (11.3%). However, their providers only infrequently asked or

provided counseling about these issues during clinical encounters. The purpose of this study was to validate a Chinese version of the Guidelines for Adolescent Preventive Services (GAPS) questionnaire, to use it to examine the general health risk behaviors among undergraduate students at a public university in Hong Kong, and to assess for depressive symptoms and associated factors.

**Methods:** A valid translation process including forward translation, back translation and pretesting was performed to obtain the final Chinese version of the GAPS questionnaire. A cross-sectional study was then conducted using a convenience sample (n = 400) of undergraduate students presenting to the university health service center. The anonymous self-administered Chinese version of the GAPS questionnaire was given to students waiting for medical care. Data analysis was performed using descriptive statistics, correlation test and stepwise logistic regression in SPSS.

**Results:** Of the 400 students who completed the questionnaires, 109 (27.3%) were males and 291 (72.8%) were females. Overall, participants reported a number of health risk behaviors including inadequate physical activity (73.2%), disordered eating (50.6%), and depressive symptoms (29.3%). In addition, respondents reported getting drunk in the past month (28.3%), engaging in sexually activity (13.3%), and having suicide attempts (7.3%). Using self-reported depressive symptoms as the outcome, multivariable regression results indicated that history of sexual or physical abuse (OR = 3.66), lack of parental support (OR = 2.86), ever been told that they have a learning problem (OR = 2.62), and body image disturbance (OR = 1.87) were strongly related to self-reported depressive symptoms among students.

**Conclusions:** The GAPS (Guidelines for Adolescent Preventive Services) is a useful tool for healthcare providers to assess adolescent health risk behaviors. The main self-reported risks in this study were inadequate physical activity, disordered eating and depression. Further interventions at the university setting could include using GAPS for routine student health visits and providing targeted counseling for issues such as depression. Since the questionnaire has been validated in Chinese and shown to be feasible in clinical settings, it could be used in the future to help health professionals to identify specific risk behaviors and improve the quality of care for adolescents in Hong Kong and China.

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### PRELIMINARY LONGITUDINAL FINDINGS FROM MULTICULTURAL INTEGRATED KIDNEY EDUCATION PROGRAM (MIKE PROGRAM): PREVENTING PRECURSORS TO KIDNEY DISEASE IN LOW-INCOME MINORITY ADOLESCENTS

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**Purpose:** Improving adolescent health is a public mandate that must be met by innovative and comprehensive new programs. Multicultural Integrated Kidney Education Program (MIKE Program) is a unique upstream project-based service learning program designed to prevent precursors to chronic kidney disease (CKD) such as obesity, high blood pressure, and poor nutrition (National Kidney Foundation, 2012) in low-income minority youth. Founded in Oregon in 2003, MIKE Program utilizes near peer mentors to empower youth to be health leaders—ambassadors for

healthy kidneys—through education, mentorship and community outreach within diverse communities ([www.mikeprogram.org](http://www.mikeprogram.org), 2013). Goals of the program include increased health self-efficacy, kidney knowledge, and improved healthy lifestyle behaviors, such as nutrition and exercise for youth at risk for diabetes and CKD, as these factors are important in programs for positive adolescent health outcomes (Collins et al., 2002).

**Methods:** The sample included 59 youth (50.8% males) who completed MIKE Program 2 to 3 years prior during freshman year in high school. Youth were predominantly of African American and Latino descent and 20% had mothers with less than a high school education. Average BMI was 24.66 (sd = .52) and ranged from 16.5 to 44.6.

**Results:** The majority of youth rated MIKE program as somewhat to very effective (83%) and rated their mentors similarly (86.5%). Perceived effectiveness was significantly correlated with program outcomes. Higher ratings of MIKE Program effectiveness was significantly correlated with well-being ( $r = .32$ ,  $p = .01$ ; WHO-5 Well-being Index) and greater outreach ( $r = .32$ ,  $p = .01$ ). Youth who rated their mentors more highly had marginally significant higher levels of kidney knowledge ( $r = .25$ ,  $p = .06$ ), and reported drinking more water ( $r = .35$ ,  $p = .01$ ) as well as a marginal effect for greater exercise ( $r = .22$ ,  $p = .09$ ) when retrospectively about their time in the program. Health self-efficacy (SRAHP Scale; Harrison, Beebe, & Park, 2001), which had shown change from pre- to post-testing in the freshman year, did not differ among participants at follow-up. Further, BMI was unrelated to program or mentor effectiveness. When comparing this sample to national statistics from the 2011 CDC Youth Risk Behavior Surveillance Study (CDC, 2011), this group appeared to be trending toward healthier behaviors as a lower proportion of the youth reported not eating breakfast at least once a week (8.5% versus 13.8%) and not getting 60 minutes of physical activity at least once a week (5.1% versus 13.1%) as compared to high school students nationally. Eating breakfast was the only variable significantly related to decreased BMI ( $r = -.38$ ,  $p = .01$ ;  $n = 51$ ).

**Conclusions:** These results suggest youth who participated in MIKE Program found it to be effective overall. Those who highly rated the program and mentors experienced more positive well-being several years later, retained greater knowledge, and made more initial health changes. Longitudinal follow-up data from MIKE Program participants indicates areas of success in improving well-being and healthy behaviors among at risk youth and underscores the importance of mentoring (Dubois & Silverthorn, 2005) in adolescent health promotion. While these are important preliminary findings, further work is needed to track individual outcomes prior to and after MIKE Program at consistent longitudinal intervals.

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#### PARENTAL ATTITUDES TOWARDS HUMAN PAPILLOMAVIRUS (HPV) VACCINATION OF BOYS: QUANTITATIVE AND QUALITATIVE RESULTS TO GUIDE DEVELOPMENT OF EFFECTIVE HPV VACCINE INTERVENTIONS

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**Purpose:** Incidences of both human papillomavirus (HPV) infection and HPV-related cancers are on the rise in men. However, vaccine uptake is low. Parental consent is required prior to receiving the HPV vaccine. This study examined parental perceptions of the HPV vaccine for boys through survey methods ( $N = 422$ ) and focus groups ( $N = 45$ ).

**Methods:** This cross-sectional study used a mixed methods approach and was conducted in cooperation with communities in three counties with high rates of cervical cancer in the southeastern United States. Data were collected from January 2010 until August 2012. The study was approved by the affiliated university's Institutional Review Board (IRB) and school officials, parents, and community leaders. A convenience sample of 467 parents with male children was recruited using an IRB approved flyer and data collection occurred in two stages: 1) quantitative survey data collection using the Parental HPV survey (Cronbach's Alpha 0.96), and 2) qualitative focus groups and interviews.

**Results:** Chi square analysis revealed no significant differences between parents who intended to vaccinate their sons and those who did not. Logistic regression was used and to adjust for multi-collinearity, forward likelihood ratio variable selection was used within each block (block 1: demographic covariates, block 2: four HPV scales) ( $p < 0.10$  for entry,  $p > 0.20$  for removal) to select the final logistic regression model identifying predictors of intent to vaccinate. Mothers were 1.68 times more likely than fathers to vaccinate their sons, and African Americans were 1.78 times more likely than Caucasians to vaccinate their sons. Content analysis of transcribed focus groups and interviews provided four emergent themes: Lack of Knowledge about HPV, Unaware that HPV vaccine was for boys, No Correlation between Cancer and Persistent HPV Infection, and Parents did not communicate about HPV through their normative social networks.

**Conclusions:** Awareness of the new HPV immunization guidelines from the Advisory Committee on Immunization Practice (ACIP) at the CDC, for boys, and the increasing rates of mouth, head, and neck cancers secondary to HPV infection are essential to decreasing HPV related cancers. It is important to view parents as members of a community with social networks that are entwined with one another and embedded within their unique cultural, geographic and socioeconomic milieu. However, it is a mistake to assume that parents utilize these social networks for communication about HPV vaccination. In the future, to increase vaccination rates for boys, health care providers must utilize strategies to increase parents' knowledge of HPV vaccination, the connection between HPV infection and persistent infection and HPV related cancers. In addition, fathers should also be included in discussions about vaccinating boys against HPV infection, since this exploratory analysis found that only a small percentage of the fathers had vaccinated their son. While the findings of the study imply that mothers intend to vaccinate their sons, a father or father figure as the male head of the household can also promote HPV vaccination. Points of intervention development include: Knowledge about transmission, the connection between persistent HPV infection/cancer, and HPV vaccination recommendations for both boys and girls.

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